

What is claimed is:

1. A computer based method comprising:
decomposing data from a computer aided design file of a model,
saving said decomposed data in a plurality of smaller files wherein at least one of
5 said smaller files is an analysis file which does not contain imaging data,
accessing at least one of said analysis files to analyze the surface geometry of said
model.

2. The method of claim 1,
wherein said at least one of said analysis files does not substantially contain data
required to display an image of said model.

3. The method of claim 1,
wherein at least one of said analysis files consists of data required to analyze said
surface geometry.

4. The method of claim 1,
wherein at least one of said smaller files comprises imaging data.

5. The method of claim 1,
20 wherein at least one of said smaller files does not substantially contain data required
to analyze said surface geometry.

6. The method of claim 1,

wherein at least one of said smaller files comprises a list of specified surfaces on said model and data relating to the smallest possible three-dimensional region that can enclose each specified surface.

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7. The method of claim 1,

wherein at least a second of said at least one smaller files comprises substantially only data required for the mathematical analysis of said surface data.

8. The method of claim 6, further comprising:

obtaining the position of a surface point on an inspection surface of a physical object, at least one physical inspection surface on said physical object corresponding to an equivalent surface on said model, wherein each said surface on said model is enclosed by a different defined volume,

defining at least one target volume from said defined volume that encloses said surface point,

determining the distance between the surface on said model enclosed by said at least one target volume and said point on said physical object.

9. The method of claim 8 wherein,

each of said defined volumes comprises the smallest possible three-dimensional region that can enclose said inspection surface.

10. A computer based method comprising:

inputting a computer aided design file containing a model of a physical object, at least one inspection surface on said physical object corresponding to an equivalent surface on said model, wherein each of said surfaces on said model is enclosed by a different defined volume,

including a datum point common to both said model and said physical object, inputting the position of a surface point on an inspection surface of said physical object,

defining at least one target volume is from said defined volume that encloses said surface point,

determining the distance between the surface on said model enclosed by said at least one target volume and said point on said physical object.

11. The method of claim 10, wherein,

if no defined volume encloses said point then said target volume comprises that defined volume closest to said point.

12. The method of claim 10, wherein,

each of said at least one of said defined volumes comprise the smallest possible three-dimensional region that can enclose said inspection surface.

13. A medium including machine-readable computer program code for managing computer aided design data, the medium including instructions for causing a computer to implement a method comprising:

decomposing data from a computer aided design file of a model,
5 saving said decomposed data in a plurality of smaller files wherein at least one of said smaller files is an analysis file which does not contain imaging data,
accessing at least one of said analysis files to analyze the surface geometry of said model.

14. The medium of claim 13,
wherein said at least one of said analysis files does not substantially contain data required to display an image of said model.

15. The medium of claim 13,
wherein at least one of said analysis files consists of data required to analyze said surface geometry.

16. The medium of claim 13,
wherein at least one of said smaller files comprises imaging data.

17. The medium of claim 13,
wherein at least one of said smaller files does not substantially contain data required to analyze said surface geometry.

18. The medium of claim 13,

wherein at least one of said smaller files comprises a list of specified surfaces on said model and data relating to the smallest possible three-dimensional region that can enclose each specified surface.

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19. The medium of claim 13,

wherein at least a second of said at least one smaller files comprises substantially only data required for the mathematical analysis of said surface data.

20. The medium of claim 18, further comprising instructions for causing a computer to implement:

obtaining the position of a surface point on an inspection surface of a physical object, at least one physical inspection surface on said physical object corresponding to an equivalent surface on said model, wherein each said surface on said model is enclosed by a different defined volume,

defining at least one target volume from said defined volume that encloses said surface point,

determining the distance between the surface on said model enclosed by said at least one target volume and said point on said physical object.

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21. The medium of claim 20 wherein,

each of said defined volumes comprises the smallest possible three-dimensional region that can enclose said inspection surface.

22. A medium including machine-readable computer program code for use in measuring a physical object, the medium including instructions for causing a computer to implement a method comprising:

inputting a computer aided design file containing a model of a physical object, at least one inspection surface on said physical object corresponding to an equivalent surface on said model, wherein each of said surfaces on said model is enclosed by a different defined volume,

including a datum point common to both said model and said physical object, inputting the position of a surface point on an inspection surface of said physical object,

defining at least one target volume is from said defined volume that encloses said surface point,

determining the distance between the surface on said model enclosed by said at least one target volume and said point on said physical object.

23. The medium of claim 22, wherein, if no defined volume encloses said point then said target volume comprises that defined volume closest to said point.

24. The medium of claim 22, wherein, each of said at least one of said defined volumes comprise the smallest possible three-dimensional region that can enclose said inspection surface.